

Title (en)  
MEASURING DEFORMATION OF A COMPRESSION SPRING TO MONITOR PERFORMANCE OF A SAFETY VALVE

Title (de)  
MESSUNG DER VERFORMUNG EINER DRUCKFEDER ZUR ÜBERWACHUNG DER LEISTUNG EINES SICHERHEITSVENTILS

Title (fr)  
MESURE DE LA DÉFORMATION D'UN RESSORT DE COMPRESSION POUR SURVEILLER LA PERFORMANCE D'UNE SOUPAPE DE SÉCURITÉ

Publication  
**EP 3514421 A1 20190724 (EN)**

Application  
**EP 19151948 A 20190115**

Priority  
US 201815878152 A 20180123

Abstract (en)  
A safety valve (100) is outfit with sensors (120) to monitor performance. The safety valve (100) may include valve mechanics (108) comprising a closure component (110) moveable relative to a seat (112). The device (100) may also have a pre-load unit (114) coupled with the closure component (110). The pre-load unit (114) may utilize a coiled compression spring (118) to generate spring force to keep the closure component (110) in contact with the seat (112). A strain gauge (120) may be disposed on the compression spring (118) to measure strain, for example, shear strain in the compression spring (118). Analysis of this data may predict set pressure (or "set point"). This prediction may, in turn, form a basis for an alert or other indicator that the safety valve (100) requires maintenance or repair.

IPC 8 full level  
**F16K 17/04** (2006.01); **F16K 37/00** (2006.01)

CPC (source: CN EP US)  
**F15B 19/005** (2013.01 - CN); **F16K 17/04** (2013.01 - EP US); **F16K 17/048** (2013.01 - US); **F16K 17/06** (2013.01 - US); **F16K 37/0041** (2013.01 - EP US); **F16K 37/0083** (2013.01 - US); **G01L 5/0038** (2013.01 - US); **G01L 17/005** (2013.01 - US); **F16K 17/0413** (2013.01 - US); **F16K 17/0466** (2013.01 - US)

Citation (search report)

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Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
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DOCDB simple family (application)  
**EP 19151948 A 20190115**; CA 3029701 A 20190110; CN 201910062597 A 20190123; JP 2019006731 A 20190118; US 201815878152 A 20180123